

Perceptions of local stakeholders about marine turtles on the Sindhudurg coast of southern Maharashtra, India

Aditya Kakodkar

DD's Cross Building, Agalli, Fatorda,
Margao, Goa 403 602. India.
Email: adiz@myself.com

Introduction

Five sea turtles are known to occur on the coast of Maharashtra (Giri, 2001). This project investigates the present status of marine turtles on the Sindhudurg coast of Maharashtra. Nesting on the Sindhudurg coast is sporadic, but there are adverse impacts on marine turtles due to killing for meat and poaching of eggs (Giri, 2001).

Study Area and Methods

The study was carried out in Sindhudurg, the southernmost district of Maharashtra (15°35'N to 16°33'N and 73° 18'E to 74° 13'E), with a coastline of 121 km (Figure 1). The coastline is divided into three *talukas* namely Vengurla, Malvan and Deogad, from south to north. Malvan taluka is the most important fish landing area of Sindhudurg district, followed by Deogad and Vengurla. This district was specially chosen as it has a rich coastal environment and has an identified site for a marine park.

Thirteen sites were chosen for the execution of the project. There were five sites in the Malvan taluka, and four sites each in Deogad and Vengurla talukas. The sites are: **Malvan taluka** – 1) Achra, 2) Talashil, 3) Sarjekot, 4) Malvan and 5) Deobag; **Deogad taluka** – 1) Tambeldeg, 2) Padvane, 3) Vijaydurg and 4) Deogad; **Vengurla taluka** – 1) Redi, 2) Neevti, 3) Bhogve and 4) Vengurla. The sites were selected according to the intensity of fishing activities in the region and the population of the villages. Malvan and Deogad talukas have a large number of fishermen with mixed fishing for different types of fishes. The fishing community in Vengurla is very small with mainly shrimp fishing.

The method involved direct interviews with local stakeholders i.e. fishermen and local people. A

technique of stratified random sampling was employed, where the stakeholders were divided according to their age group and occupation. Ten fishermen interviewed at each study site, including young fishermen below the age of 25 years (2), a middle age group of between 25-50 years (4) and the old age group of 50 years and above (4). The views of this last group were particularly important as they were able to compare present and past status of the coastal environment and marine turtles.

Eight local persons were interviewed at each site, including teachers in local schools and colleges (2), students (2), businessmen (2), and lay persons (2) constituting people from different occupations. The business people also included local fisherwomen in some places. The sample size was increased to 12 at study sites with higher population; here 4 teachers and 4 laymen were interviewed. Different questionnaires were used for the fishermen and the local population (see Appendix). The data were collected through individual interviews.

Results and Discussion

Interviews with fishermen

The leatherback turtle (*Dermochelys coriacea*) is locally known as 'Kurma', whereas the olive ridley (*Lepidochelys olivacea*) is known as 'Tupalo'. The rest of the turtles are generally referred to as 'Kasai'. The data collected through the interviews showed frequent encounters of olive ridley turtles, while fishing was common all through the study area. Green turtles (*Chelonia mydas*) were more common in the Vengurla and Malvan talukas compared to Deogad. The reported encounters of green turtles decreased northwards. The leatherback turtle was encountered near the Malvan taluka and less in the Vengurla and Deogad

talukas. There were no confirmed records of loggerhead (*Caretta caretta*) and hawksbill turtles (*Eretmochelys imbricata*). Encounters with turtles were reported mostly in the post-monsoon season after September whereas some believed that there was no particular season for nesting. The fishermen mostly encountered marine turtles entangled in their gear in the morning or at night. The average curved carapace length (CCL) of the marine turtles encountered by the fishermen ranged from 45 - 65cm. The weight was reported to be from 15 - 100 kg. Almost all of the interviewees reported less than five encounters with marine turtles per day. All fishermen reported turtle nesting on the beaches near their villages.

There are not many reports of the sighting of marine turtles on the coast of Sindhudurg in recent years. The sightings reported in the study area were of a leatherback turtle at Chiwla beach in Malvan and of an olive ridley turtle at Deobag; in both cases the turtles were caught in dragnets. Two young green turtles (CCL - 25cm and 45cm) were found in two separate wells near the shore at Neevti where they had been kept for consumption at a later time. These were also caught in a dragnet. One dead turtle each was encountered at Vengurla and Malvan, the former a green turtle (CCL - about 90cm), and the latter an olive ridley turtle (CCL - 65cm). The head of the green turtle was missing, while the ridley had a broken carapace with intact costal scutes and damaged central scutes.

Fishermen were aware of the legal protection for marine turtles; they denied poaching of marine turtles and said they set turtles free whenever they got entangled in their fishing gear (almost 100%). Trade in turtle products is very common along the Sindhudurg coast and both fishermen and local people actively participate in it. Not a single village was found where there was no turtle trade. Mainly, turtle meat is consumed; there are also superstitions about its medicinal value in treating bone disorders. The eggs are sold at approximately Rs 2 each, although there are some reports of eggs being sold at the rate of Rs 5 per egg. The meat is usually not sold due to the fear of being legally punished but in some places the whole turtle is sold for Rs 250-500; this was reported mainly from the fishing town

of Malvan. Reports suggest that if a turtle is encountered at sea, it is killed and its meat is packed in containers, and the leftovers are disposed at sea to avoid detection. The leatherback turtle is mostly not harmed. Turtle Excluder Devices (TEDs) are not used or known.

Interviews with the local population

Most members of the local population (73% of teachers, 96% of students, 91% of laymen and about 83% of businessmen) knew that the turtles nest on the Sindhudurg coast. Fifty two percent of teachers, 75% of teachers, 88% of students, 79% of laymen, and 91% of businessmen say that local fishermen and local people are involved in the illegal trade. Fifty five percent of the interviewed teachers, 33% of students, 41% of laymen and 65% of businessmen consume turtle products. All the four groups reported that turtle eggs are sold for Rs 5-10 per egg, while teachers and businessmen reported that turtle meat is sold at up to Rs 30 per kg. Most of the people who consumed turtle eggs did so for the taste of the eggs. Almost all of the interviewed groups felt the need for the conservation of marine turtles. Fifty eight percent of teachers, 46% of students, 62% of laymen, and 57% of businessmen knew that marine turtles are legally protected. The lowest level of awareness was among teachers whereas lay persons and the students were most aware.

There are some conservation efforts for marine turtles in Deogad taluka (Padvane and Tamberdeg villages) where the forest department and local people have come together to protect the nests of the marine turtles. There are some places where the fishing activities are minimal, where locals can earn their livelihood through tourism and thus benefit financially from extending protection to marine turtle nests. Such programmes are worth trying at Kolamb, Bhogve, Tamberdeg, and Padvane. Daily surveys must be carried out on the nesting beaches to find the nests before poachers or predators do. Some areas that have less fishing activities and potential as nesting habitats should be declared as community reserves. In-situ conservation practices, as seen in Tamberdeg and Padvane, should be encouraged.

Acknowledgements: I would like to thank Prof J. S. Samant, Head, Department of Environmental Science, Shivaji University, Kolhapur, for guiding me through this study. I would like to also thank Sujeet Kumar Dongre, Vijay Parbat, Suhas Waingankar, N.S. Daptardar, R.P. Jadhav, the

fisher folk, local people and all the other stakeholders who were interviewed during the study, for the kindness that they have shown, by giving me information about the target fauna and extending their support whenever it was required.

Literature Cited

Giri, V. 2001. *Survey of marine turtles along the coast of Maharashtra and Goa. A GOI-UNDP sea turtle project report.* Bombay Natural History Society, Mumbai. 18 p.



Figure 1: Map of the Sindhudurg coast of Maharashtra on the west coast of India

APPENDIX

Questionnaire for Fishermen:

- 1) How long have you been fishing? ___ Years.
- 2) During which time of the day do you go out for fishing?
 - a) Mornings, b) Evenings, c) Afternoons, d) Nights
- 3) What is the fishing gear used?
 - a) Gillnet, b) Rampan (dragnet), c) Purse seine, d) Cast net, e) Hook and line, f) Trawls, g) Others
- 4) Which craft is used?
 - a) Trawler (Mechanized), b) Dugout, d) Any other _____.
- 5) Do you encounter any sea turtles while fishing? Yes/No.
- 6) Which of the following are caught in the net? (Visual key)
 - a) Olive ridley Turtle, b) Green Turtle, c) Leatherback Turtle, d) Hawksbill Turtle, e) Loggerhead Turtle
- 7) Do the turtles get entangled in your fishing gear? Yes/No.
 - * If yes how do you deal with them?
 - a) Kill them, b) Release them, c) Cut the net to set them free, d) Throw away the net, e) Do nothing about it, f) Amputate them.
 - * If released for what reason? _____
 - * If amputated for what reason? _____
 - * If sold in the market or personally consumed? _____
- 8) Which is the season? _____ Month
- 9) What is the time? a) Mornings, b) Evenings, c) Afternoons, d) Nights
 - * Which area and how far away from the shore? _____
 - * What depth? _____
- 10) What is the mesh size of your net? _____ mm.
- 11) What is the average size of a turtle? _____ cms.
- 12) What is the approximate weight? _____ Kilograms.
- 13) What are the encounters/ day? a) Less than 5, b) 5-10, c) 10-15, d) 15 or more.
- 14) Do you use any special technique to avoid catching turtles (TEDs)? Yes/No.
 - * If yes, what type? _____
- 15) Do you know about turtles visiting the Sindhudurg coast? Yes/ No.
- 16) Since when do you think turtles visit Sindhudurg coast?
 - a) Personal knowledge: _____ Years.
 - b) From other sources: _____ Years.
- 17) For what purpose do you think the turtles visit the coast?
 - a) For laying eggs, b) For feeding, c) For mating, d) Don't know, e) Any other.
- 18) Have you seen any sea turtles on the beaches of Sindhudurg lately? Yes/ No.
 - * If yes, When?
 - a) Deobagh, b) Tarkarli, c) Kolamb, d) Sarjekot, e) Rest house, f) Jetty, g) Achra, h) Neevati, i) Other?
- 19) Which are the areas in sea / beaches where maximum number of turtles is noticed?

- 20) You know about the trade of turtle eggs and meat? Yes/ No.
 - * If yes, do you take part in it? Yes/ No. In what way? _____
- 21) What do the fishermen do when they encounter a turtle nest?
 - a) Leave it as it is, b) Collect and sell the eggs, c) Collect the eggs for household consumption, d) Use it as bait for fishing, e) Inform others.
- 22) Do you eat turtle meat/ eggs? Yes/ No.
- 23) Why do you think people eat turtle meat and eggs?
 - a) Taste, b) Rare, c) Cure for illnesses, d) Nutritious, e) Cheap, e) Others _____
- 24) If you think turtle eggs and meat are traded how much do they sell it for?
 - * Eggs (Rate per egg): a) Up to Rs 5, b) Rs 5 – Rs 10, c) Rs 10- Rs 15, d) Above Rs 15.
 - * Meat (Rate per Kilogram): a) Up to Rs 30, b) Rs 30 – Rs 50, c) Rs 50 – Rs 100, d) above Rs 100.

- 25) How many turtles per year are caught in a net per fishing trawler/season? ____ (%)
- 26) How many of them are young (immature) _____ (%).
- 27) How many turtles may be caught in your area per year? ____ (%).
- 28) How many out of the caught/ entangled are released or escape? _____ (%).
- 29) How does a turtle die in a encounter? _____
- 30) Do you think it can be saved or protected? And how? _____
- 31) What do you think should be done to conserve turtles?
 a) Stop illegal trade, b) Stop killing turtles for meat, c) Use turtle friendly fishing gear (TED's), d) Disallow encroachment of beaches, e) Ex-situ practices f) other, If other, specify _____.
- 32) Do you think there are any other predators of turtles in the sea? Yes/ No.
 * If yes, which, a) Sharks, b) Others _____
 * And of their eggs, a) Dogs, b) Foxes, c) Crows, d) Crabs, e) Monitor lizards f) Other,
 * If other, specify _____.
- 33) Do you know that trading turtle products is a punishable offence? Yes/ No

Questionnaire for Local population:

- 1) Do you visit the coast near your village? Yes/ No
 * If yes, specify how often, a) Every day, b) Once a month, c) Once a week, d) Rarely, e) Others.
 * If others, specify _____.
- 2) What are the changes that you have noticed in the recent times near the coast that were not seen in the past? (Ten years or more)
 a) New infrastructure, b) Increase in the fishing activities, c) More tourism related activities (Hotels), d) Houses and other constructions, e) Plantations, f) Others
- 3) Do you know about sea turtles visiting Sindhudurg coast? Yes/ No
- 4) For what purpose do you think the turtles visit the coast?
 a) For laying eggs, b) For feeding, c) For mating, d) Don't know,
 e) For resting, f) Other _____
- 5) Have you seen any sea turtles on the beaches of Sindhudurg (recently)? Yes/ No
 * If yes, When ? _____ Where? _____
 a) Deobagh, b) Tarkarli, c) Kolamb, d) Sarjekot, e) Rest house, f) Jetty, g) Achra, h) Neevati, i) Other?
 * How many _____
- 6) Do you know about the illegal turtle trade? Yes/ No
- 7) Who does this trade?
 a) Fishermen, b) Local people, c) Business people, d) Any other
- 8) Have you ever bought or consumed a turtle egg or meat? Yes/ No
- 9) Why do you think people eat turtle meat and eggs?
 a) Taste, b) Rare, c) Cure for illnesses, d) Nutritious, e) Cheap, f) Others _____
- 10) If you think turtle eggs and meat are traded how much do they sell it for?
 * Eggs (Rate per egg): a) Up to Rs 5, b) Rs 5 – Rs 10, c) Rs 10- Rs 15, d) Above Rs15.
 * Meat (Rate per Kilogram): a) Up to Rs30, b) Rs 30 – Rs 50, c) Rs 50 – Rs 100, d) above Rs 100.
- 11) Do you think sea turtles should be conserved? Yes/ No, * If yes why? _____
- 12) What do you think should be done to conserve marine turtles?
 a) Stop illegal trade, b) Stop killing turtles for meat, c) Use turtle friendly fishing gear, d) Disallow encroachment of beaches, e) Ex-situ practices, f) Other
 * If other, specify _____
- 13) Do you know that trading turtle products is a punishable offence? Yes/ No
 * If yes what is the punishment? _____